

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
 US Department of Commerce
 United States Patent and Trademark
 Office, PCT
 2011 South Clark Place Room
 CP2/5C24
 Arlington, VA 22202
 ETATS-UNIS D'AMERIQUE
 in its capacity as elected Office

| | |
|--|--|
| Date of mailing (day/month/year) 05 June 2001 (05.06.01) | |
| International application No. PCT/AU00/01100 | Applicant's or agent's file reference 16788 CLV:NH |
| International filing date (day/month/year) 15 September 2000 (15.09.00) | Priority date (day/month/year) 15 September 1999 (15.09.99) |
| Applicant MUNYARD, Andrew, Gordon, Stuart et al | |

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
 05 April 2001 (05.04.01)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

| | |
|---|---|
| The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35 | Authorized officer Charlotte ENGER Telephone No.: (41-22) 338.83.38 |
|---|---|

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

MADDERNS
Level 1
64 Hindmarsh Square
Adelaide, S.A. 5000
AUSTRALIE

| | |
|---|--|
| Date of mailing (day/month/year) 07 June 2001 (07.06.01) | IMPORTANT NOTIFICATION |
| Applicant's or agent's file reference 16788 CLV:NH | |
| International application No. PCT/AU00/01100 | International filing date (day/month/year) 15 September 2000 (15.09.00) |

| | | |
|--|---|--------------------------------------|
| 1. The following indications appeared on record concerning: | | |
| <input checked="" type="checkbox"/> the applicant | <input type="checkbox"/> the inventor | <input type="checkbox"/> the agent |
| <input type="checkbox"/> the common representative | | |
| Name and Address BRITAX RAINSFORDS PTY LTD Sherriffs Road Lonsdale, S.A. 5160 Australia | State of Nationality AU | State of Residence AU |
| | Telephone No. | |
| | Facsimile No. | |
| | Teleprinter No. | |
| 2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning: | | |
| <input type="checkbox"/> the person | <input checked="" type="checkbox"/> the name | <input type="checkbox"/> the address |
| <input type="checkbox"/> the nationality | | |
| <input type="checkbox"/> the residence | | |
| Name and Address SCHEFENACKER VISION SYSTEMS AUSTRALIA PTY LTD Sherriffs Road Lonsdale, S.A. 5160 Australia | State of Nationality AU | State of Residence AU |
| | Telephone No. | |
| | Facsimile No. | |
| | Teleprinter No. | |
| 3. Further observations, if necessary: | | |
| 4. A copy of this notification has been sent to: | | |
| <input checked="" type="checkbox"/> the receiving Office | <input type="checkbox"/> the designated Offices concerned | |
| <input type="checkbox"/> the International Searching Authority | <input checked="" type="checkbox"/> the elected Offices concerned | |
| <input checked="" type="checkbox"/> the International Preliminary Examining Authority | <input type="checkbox"/> other: | |

| | |
|---|--|
| The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland | Authorized officer V. Gross (Fax 338.87.40) |
| Facsimile No.: (41-22) 740.14.35 | Telephone No.: (41-22) 338.83.38 |

REC'D 15 AUG 2001

WIPO

PCT

| | | |
|---|--|---|
| Applicant's or agent's file reference 16788WGM:NH | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416). | |
| International Application No. PCT/AU00/01100 | International Filing Date (day/month/year) 15 September 2000 | Priority Date (day/month/year) 15 September 1999 |
| International Patent Classification (IPC) or national classification and IPC Int. Cl. ⁷ B60R 1/06, 1/02 | | |
| Applicant SCHEFENACKER VISIONS SYSTEMS AUSTRALIA PTY LTD et al. | | |

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 7 sheets, including this cover sheet.
☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheet(s).

3. This report contains indications relating to the following items:

- | | | |
|------|-------------------------------------|---|
| I | <input checked="" type="checkbox"/> | Basis of the report |
| II | <input type="checkbox"/> | Priority |
| III | <input type="checkbox"/> | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| IV | <input type="checkbox"/> | Lack of unity of invention |
| V | <input checked="" type="checkbox"/> | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| VI | <input checked="" type="checkbox"/> | Certain documents cited |
| VII | <input checked="" type="checkbox"/> | Certain defects in the international application |
| VIII | <input checked="" type="checkbox"/> | Certain observations on the international application |

| | |
|---|---|
| Date of submission of the demand 5 April 2001 | Date of completion of the report 3 August 2001 |
| Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929 | Authorized Officer L. DESECAR Telephone No. (02) 6283 2381 |

I. Basis of the report

1. With regard to the elements of the international application:*
- ☒ the international application as originally filed.
- ☐ the description, pages , as originally filed,
 pages , filed with the demand,
 pages , received on with the letter of
- ☐ the claims, pages , as originally filed,
 pages , as amended (together with any statement) under Article 19,
 pages , filed with the demand,
 pages , received on with the letter of
- ☐ the drawings, pages , as originally filed,
 pages , filed with the demand,
 pages , received on with the letter of
- ☐ the sequence listing part of the description:
 pages , as originally filed
 pages , filed with the demand
 pages , received on with the letter of
2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language which is:
- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:
- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished
4. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig.
5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | |
|-------------------------------|------------------|-----|
| Novelty (N) | Claims 3 | YES |
| | Claims 1-2, 4-21 | NO |
| Inventive step (IS) | Claims | YES |
| | Claims 1-21 | NO |
| Industrial applicability (IA) | Claims 1-21 | YES |
| | Claims | NO |

2. Citations and explanations (Rule 70.7)

NOVELTY(N) Claims 1-2, 4-21:

- (a) DE 3524255 A 1-2, 4-21
- (b) DE 3923706 A 1-3, 16
- (c) US 5610772 A 1-3, 16
- (d) US 5949591 A 1-2, 16

Each of the above documents also cited in the corresponding international search report discloses all of the features of the claims identified alongside. In relation to later published, earlier priority, documents, see Box VI "Certain documents cited".

Claim 1:

For example document (a) see column 1 line 54 to column 3 line 49, Figures 1-6, wherein it clearly discloses a mirror mounting assembly having means for preventing unwanted movement of the mirror comprising a mirror support such as housing (3), a base portion (2), a pivoting joint (4), a link (13), an aperture (33) into which the second end of the link locates with tight sliding fit (see column 3 lines 30-33, Figure 3) for adjustment with respect to the base and acts as to prevent unwanted movement of the mirror support.

Claims 2, 4-15, 17-21:

The additional features introduced by these claims are similarly disclosed in the document (a) and in particular:

- | | |
|--|---|
| - pivotally attached link | see column 2 lines 55-58, Figures 1-2, 6, items 4 and 13, |
| - a pair of walls | see column 3 line 11, Figures 1-5, items 22-23, |
| - flat elongate member/ rectangular cross-section | see column 3 lines 11-12, Fig. 2-3 item 21, |
| - a force means | see column 3 lines 25-33, Fig 3-5 items 34-35, |
| - a frame attachable to a base portion | see column 3 lines 9-49 Fig 1-6 items 3, 21-46. |

(See Supplemental Box I)

VI. Certain documents cited**1. Certain published documents (Rule 70.10)**

| Application No. Patent No. | Publication date (day/month/year) | Filing date (day/month/year) | Priority date (valid claim) (day/month/year) |
|-------------------------------|--------------------------------------|---------------------------------|--|
| P, X US 6024459 | 15 February 2000 | 11 April 1997 | 11 April 1997 |

This document discloses all of the features of the Claims 1-2, 16.

2. Non-written disclosures (Rule 70.9)

| Kind of non-written disclosure | Date of non-written disclosure (day/month/year) | Date of written disclosure referring to non- written disclosure (day/month/year) |
|--------------------------------|--|--|
|--------------------------------|--|--|

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

Claim 22 does not comply with the Rule 6.2(a) under the PCT because the claim should not rely on references to the description or the drawings.

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claim 18 is not clear because it is directed to "A mirror mounting means", whereas claim 16 to which the claim is ultimately appended is directed to "A mirror mounting assembly".

Similar objection applies to Claims 19-21.

Supplemental Box I

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of Box V**Claim 16:**

Document (a)

All the features of the claim are disclosed in the document (see as against claim 1 above).

INVENTIVE STEP (IS) Claims 1-21:

Claims 1-2, 4-21: As above.

Claim 3:

Documents (b) and (c)

These documents when taken alone do not disclose all the features , but when any one of documents (b) and (c) combined with the document (a), as would be obvious to a person skilled in the art, disclose all the features of the claim, see for example document (b):

- mirror support comprising socket/ball

see Figures 3-8 items 18 and 22.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU00/01100

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. ⁷: B60R 1/06, 1/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC: B60R 1/06, 1/02

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
AU: IPC AS ABOVE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
DWPI and key words

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|---|-----------------------|
| P, X | US 6024459 A (LEWIS) 15 February 2000 Whole document | 1-2, 16 |
| X | DE 3524255 A (MESSERSCHMITT-BÖLKOW-BLOHM GmbH) 15 January 1987 Whole document | 1-18, 20-21 |
| X | DE 3923706 A (SCHLACHTBERGER) 31 January 1991 Whole document | 1-3, 16 |

☒ Further documents are listed in the continuation of Box C ☒ See patent family annex

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance
 "E" earlier application or patent but published on or after the international filing date
 "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
 "O" document referring to an oral disclosure, use, exhibition or other means
 "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
 "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
 "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
 "&" document member of the same patent family

Date of the actual completion of the international search
13 October 2000

Date of mailing of the international search report
20 OCT 2000

Name and mailing address of the ISA/AU

AUSTRALIAN PATENT OFFICE
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU00/01100

| C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT | | |
|---|--|-----------------------|
| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
| X | US 5610772 A (HIZUKA) 11 March 1997 Whole document | 1-3, 16 |
| X | US 5949591 A (WHITEHEAD) 7 September 1999 Whole document | 1-2, 16 |

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/AU00/01100

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

| Patent Document Cited in Search Report | | Patent Family Member | |
|--|---------|----------------------|---------|
| DE | 3524255 | FR | 2584502 |
| US | 5610772 | EP | 620138 |
| | | JP | 6127311 |
| US | 5949591 | BR | 9805270 |
| END OF ANNEX | | | |

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
22 March 2001 (22.03.2001)

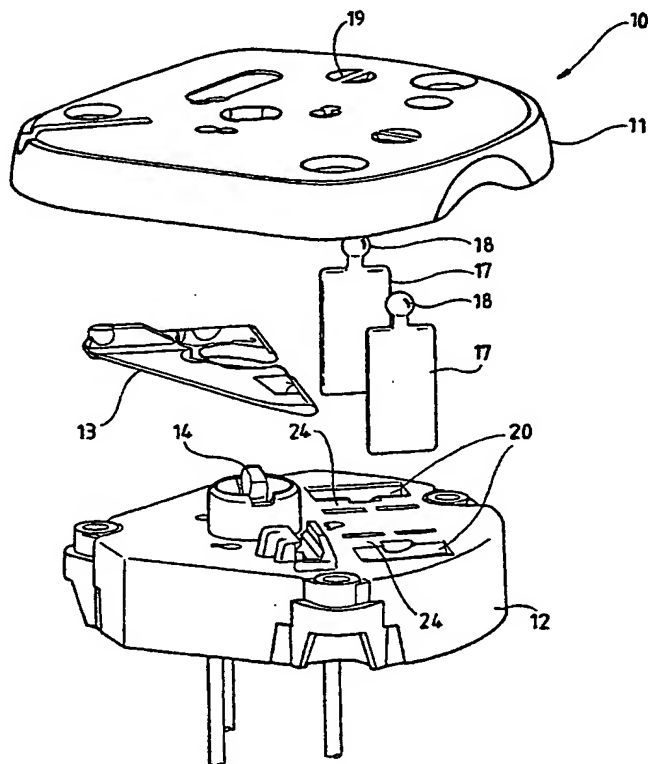
PCT

(10) International Publication Number
WO 01/19645 A1

- (51) International Patent Classification⁷: B60R 1/06, 1/02
- (21) International Application Number: PCT/AU00/01100
- (22) International Filing Date:
15 September 2000 (15.09.2000)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
PQ 2834 15 September 1999 (15.09.1999) AU
- (71) Applicant (for all designated States except US): BRITAX
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Lonsdale, S.A. 5160 (AU).
- (72) Inventors; and
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dale, S.A. 5160 (AU). FIMERI, Gary, Gordon [AU/AU];
Sherriffs Road, Lonsdale, S.A. 5160 (AU).
- (74) Agent: MADDERNS; Level 1, 64 Hindmarsh Square,
Adelaide, S.A. 5000 (AU).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ,
DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,
HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,
NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,
TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European
patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,

[Continued on next page]

(54) Title: A MIRROR MOUNTING ASSEMBLY FOR CONTROLLING VIBRATION OF A MIRROR



(57) Abstract: A mirror mounting assembly (10) comprising a mirror support (11), a base portion (12), a pivoting joint (13, 14) between the support (11) and the base portion (12), a pivoting joint (13, 14) between the support (11) and the base portion (12) allowing the support (11) to pivot with respect to the base portion (12), a link (17) extending between the support (11) and the base portion (12), a first end of the link (17) being held with respect to either the support (11) or the base portion (12), an aperture (20) provided in the support (11) or the base portion (12) into which the second end of the link (17) locates, a tight sliding fit between the aperture (20) and the link (17), the link (17) moving through the aperture (20) allowing to support (11) to be adjusted with respect to the base portion (12), the fit being such that unwanted movement between the support (11) and base portion (12) is prevented during normal use.

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IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

— *With international search report.*

A MIRROR MOUNTING ASSEMBLY FOR CONTROLLING VIBRATION OF A MIRROR

This invention relates to a mirror mounting assembly, and in particular to a means of mounting an adjustable mirror in a manner that will control undesirable vibration or movement of the mirror.

Background of Invention

It is common for rear vision mirrors, particularly those mounted externally of a vehicle to be adjustable about two orthogonal axes. This adjustment can be by remote, manual or electric means, or by directly adjusting the mirror by hand.

Rear vision mirrors normally comprise a mirror body or shell with a mirror located in the shell. A base is separately mounted within the shell and a mirror support is pivotally attached to the base. This allows movement of the mirror support and the attached mirror about the adjustment axes. The base may also be part of the mirror body or shell moulding.

One principal aim is to minimise unwanted vibration or movement of the mirror support with respect to the base portion. Vibration should be minimised regardless of the position to which the mirror support is moved. Ideally, the mirror support should be easily moved to the required position, and once in that position, it should not vibrate or move as a result of forces that would be applied to the mirror during normal use of a vehicle.

Examples of mirror support assemblies incorporating movement prevention devices is shown in US Patent No 4826305 and International Patent Application No WO 99/00272. Both of the mirror mounts shown in these patent specifications use friction engagement between two surfaces. However, in order to make both arrangements work, a high degree of precision is required in both moulding and

mounting of the components, and the arrangements are subject to failure over a period of time as a result of reduced friction as the engagement surfaces wear.

It is an aim of this invention to provide an improved mirror mounting assembly which prevents undesirable vibration and movement of the mirror.

Brief Description of the Invention

In its broadest form, the invention is a mirror mounting assembly having improved means for preventing unwanted movement of said mirror comprising a mirror support for holding a mirror, a base portion, a pivoting joint between said mirror support and said base portion that allows said mirror support to pivot with respect to said base portion, a link extending between said mirror support and said base, a first end of said link held with respect to either said mirror support or said base portion, and an aperture in either said mirror support or said base into which the second end of said link locates, there being a tight sliding fit between said aperture and said link which allows said link to move through said aperture so that said mirror support may be adjusted with respect to said base, but which acts to prevent unwanted movement of said mirror support during normal use.

Preferably, the mirror will be fixed in a conventional manner to a mirror support. Both the mirror support and base portion are preferably moulded from polymeric materials. However, other materials such as diecast metals may be equally suited.

Preferably the base portion is a separately moulded component which itself is then located in and fixed to the moulded shell of a wing rear vision mirror. Alternatively, the base may be integrally formed with other components such as the moulded shell.

Preferably, the pivoting joint allows movement of the mirror support about two orthogonal axes. However, the invention will be equally suited to mono axis mirrors where the mirror support may be adjusted about one axis only such as a vertical axis.

The pivoting joint may comprise a variety of mounts such as a ball and socket joint, or a flexible extension between the mirror support and base portion or a universal joint.

A link and the aperture into which the link locates is provided to restrain the undesirable movement, such as vibration, of the mirror support. The link extends between the mirror support and the base portion with one end of the link held with respect to either the mirror support or base portion. The other end of the link locates within an aperture on the respective component. The fit between the link and the aperture is tight but the link is able to slide with in the aperture upon sufficient force being applied. This enables both movement of the mirror support as required and sufficient holding force to prevent undesirable movement.

The aperture may be shaped to match the cross-sectional shape of the link. The link may have a variety of cross-sectional shapes but preferably comprises either a circular cross-section or a rectangular cross-section. The aperture is matched accordingly, and the fit between the link and aperture provides the required resistance to movement so that the mirror support will not move when subject to normal road use forces. However, normal adjustment force will overcome the frictional holding force.

The aperture may also be formed between a pair of elements where one or both of the elements is moveable and has a spring force applied thereto. The link may be a flat elongate member which locates between the two elements so that a pincer force is applied to the link. The spring rate can be adjusted to provide adequate holding force while at the same time allowing movement of the link when adjustment of the

mirror plate is required. The pair of elements may comprise a pair of walls where one of the walls is hinged.

Preferably, the link is pivotally attached to a first end to either the mirror support or base portion. This may comprise a ball at the end of the link which locates within a socket. The socket may be sufficiently resilient to enable the ball to be pushed into place and thereby held. Alternatively, the first end of the link may also frictionally engage an aperture in the same manner with the second end of the link. In this case, each end of the link has an enlarged end to prevent disengagement from the apertures.

In this specification, the meaning of 'held' is meant to include the link remaining stationary with respect to either mirror support or base and moving with respect to the other.

The amount of force used to hold the link will be a balance between maximising the holding force to prevent unwanted movement while not exceeding the maximum force available or desired to be used to move the mirror support.

In most instances, the mirror support is adjusted about a generally horizontal and vertical axes. A link and aperture combination for each axis of movement is used. However, it will be possible to position a single link and aperture arrangement with a dual axis movement mirror to provide the required holding force for both axes of adjustment.

In order to fully understand the invention, preferred embodiments will be described, however it should be realised that the scope of the invention is not to be limited or confined to the features of these embodiments.

Brief Description of the Drawings

These embodiments are illustrated in accompanying drawings in which:

Figure 1 shows an "exploded" view of a mirror mounting assembly;

Figure 2 shows a bottom plan view of the mirror mounting assembly;

Figure 3 shows a cross-sectional view of the mirror mounting assembly about section line 3-3 shown in Figure 2; and

Figure 4 shows a perspective view of a second embodiment of the invention.

Detailed Description

Figures 1 to 3 show a first embodiment of the invention. The mirror mounting assembly 10 comprises a mirror support 11 and a base portion 12. The pivoting joint between the mirror support 11 and base portion 12 comprises a yoke 13 and spigot 14. The spigot 14 connects directly to the mirror support 11, and the yoke 13 is pivotally attached to the mirror support 11 and base portion 12 respectively. The yoke 13 prevents rotation of the mirror support 11 with respect to the base portion 12. This connection arrangement allows movement of the mirror support 11 with respect to the base portion 12 about two orthogonal axes.

The mirror support 11 is designed to have a mirror backing plate attached to it. The mirror backing plate holds the mirror. The base portion 12 is designed to be fixed to mirror body housing such as the shell of a wing mirror. The mirror mounting assembly 10 shown in this embodiment is designed to be manually adjusted.

In this embodiment, the links that extend between the mirror support 11 and base portion 12 comprise blades 17. Each of the blades 17 is of rectangular cross-section with a retaining ball 18 formed at one end. Each retaining ball 18 locates within a socket 19 on the mirror support 11. The blades 17 are retained on the mirror support 11 and able to pivot with respect to it.

Each of the blades 17 locates within apertures 20 in the base portion 12. The apertures 20 have a generally rectangular cross-section which is similar in dimensions to the cross-section of blades 17. The longer edges of the apertures 20 comprise a fixed wall 21 and a moveable wall 22 respectively. The fixed and moveable walls 21 and 22 each have a ridge 23 which provide the point of contact between the fixed and moveable walls 21 and 22 and the blades 17.

The movable walls 22 are integrally moulded with the base portion 12 and are connected thereto by a hinge line 24 that enables each of the moveable walls 22 to rotate about the hinge line 24. A compression spring 25 is located between the moveable walls 22 and acts to push the moveable walls 22 towards the fixed walls 21. The compression spring 25 applies the required force to the friction blades 17 via the moveable walls 22 when they are located within the apertures 20.

Preferably, the base portion 12 and the blades 17 are moulded from different polymeric materials. This prevents binding between the components which would occur if the same material were used.

In this embodiment, the blades 17 are made from a glass field polyester or nylon material. The base portion 12 is manufactured from acetal. These materials, together with the force applied by the compression spring 25, will enable the ridges 23 to have sufficient grip on the surfaces of the blades 17 to restrain unwanted movement.

In this first embodiment, a pair of blades 17 is used. Each of the blades 17 is positioned either side of the spigot 14 which provides an optimum rigidity for the mirror support 11. If the mirror support 11 is rotated about an axis passing through the spigot 14 which is parallel with the part line 3-3 shown in Figure 2, then both of the blades 17 will move either into or out of the apertures 20. If the mirror support 11 is rotated about a second axis parallel to the first, then one blade 17 will move into its

aperture 20 and the other will move out of its aperture 20. The length of the blades 17 are sufficient to cover the full range of movement of the mirror support 11.

The compression spring 25 provides a convenient means for adjusting the gripping force applied to the blades 17. The compression spring can be matched to provide the required gripping force which will prevent unwanted movement while at the same time still enabling manual movement of the mirror support 11.

Figure 4 shows a second embodiment of the invention. In this embodiment, a single blade 17 and corresponding aperture is used.

In this embodiment, the aperture is formed by a frame member 28 that has two opposing halves 29 and 30. Held between the opposing halves 29 and 30 are semi-cylindrical gripping pads 31. The blade 17 is inserted between the gripping pads 31.

The opposing halves 29 and 30 of the frame member 28 are connected by a pair of bands 33. The left side opposing half 29 is shown in dashed outline in Figure 4. This opposing half 29 is rotated towards the other opposing half 30 and are clipped together. In this embodiment, clip 34 locates over projection 35 so that the opposing halves 29 and 30 of the frame member 28 are held together. A clip member 34 and projection 35 are provided on either side of the frame member 28. This enables the opposing halves 29 and 30 to be held together prior to attachment within the base portion 12.

Each of the opposing halves 29 and 30 are provided with an elongate semi-circular recess. The gripping pads 31 locate within these recesses. The gripping pads 31 are held in place once the opposing halves 29 and 30 of the frame member 28 are clipped together.

The base portion 12 has a circular aperture 37 within which the frame member 28 locates. Each of the opposing halves 29 and 30 are provided with a flange 38 that each locate through the aperture 37 and extend over the upper surface of the base portion 12. Location of the blade 17 between the gripping pads 31 holds the opposing halves 29 and 30 apart and therefore prevent the frame member 28 disengaging from the aperture 37.

A spring 39 is held in a compressed state between a wall 40 and the opposing half 30 of the frame member 28. The other opposing half 29 of the frame member 28 abuts against a wall 41. This ensures that a compressive force is applied to the blade 17. This provides the necessary resistance to movement of the blade 17. As with the first embodiment, the compression spring can be matched to provide the required gripping force which will prevent unwanted movement while at the same time enabling movement of the mirror support 11.

The invention provides a means which is component and easy to manufacture while not requiring close tolerances to ensure proper function of the mounting assembly 10.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A mirror mounting assembly having improved means for preventing unwanted movement of said mirror comprising:
 - a mirror support for holding a mirror,
 - a base portion,
 - a pivoting joint between said mirror support and said base portion that allows said mirror support to pivot with respect to said base portion,
 - a link extending between said mirror support and said base, a first end of said link held with respect to either said mirror support or said base portion, and
 - an aperture in either said mirror support or said base into which the second end of said link locates, there being a tight sliding fit between said aperture and said link which allows said link to move through said aperture so that said mirror support may be adjusted with respect to said base, but which acts to prevent unwanted movement of said mirror support during normal use.
2. A mirror mounting assembly according to claim 1 wherein said link is pivotally attached to said mirror support.
3. A mirror mounting assembly according to claim 2 where said first end of said link comprises a ball, said mirror support further comprising a socket within which said ball locates.
4. A mirror mounting assembly according to claim 1 wherein said aperture comprises a pair of walls, one of said walls being resiliently movable.
5. A mirror mounting assembly according to claim 4 wherein said link comprises a flat elongate member.
6. A mirror mounting assembly according to claim 5 wherein said link has a generally rectangular cross-section.

7. A mirror mounting assembly according to claim 4 further comprising a spring applying force to one of said walls.
8. A mirror mounting assembly according to claim 1 wherein said aperture comprises a pair of walls where one of said walls is movable and further comprising a force means so that said wall is resiliently movable.
9. A mirror mounting assembly according to claim 8 wherein said one wall is hinged to said base portion.
10. A mirror mounting assembly according to claim 9 wherein said force means comprises a spring.
11. A mirror mounting assembly according to claim 1 wherein said aperture comprises a pair of movable walls and further comprising a force means to allow resilient movement of said walls.
12. A mirror mounting assembly according to claim 11 wherein said walls are held together by a frame where said frame is attachable to said base portion.
13. A mirror mounting assembly according to claim 12 wherein said force means comprises a spring.
14. A mirror mounting assembly according to any one of claims 8 or 11 wherein said link comprises a flat elongate member.
15. A mirror mounting assembly according to claim 13 wherein said link has a generally rectangular shape.

16. A mirror mounting assembly having improved means for preventing unwanted movement of said mirror comprising:

a mirror support for holding a mirror,

a base portion,

a pivoting joint between said mirror support and said base portion that allows said mirror support to pivot with respect to said base portion,

a pair of links extending between said mirror support and said base, a first end of each said link held with respect to either said mirror support or said base portion, and

a pair of apertures in either said mirror support or said base into which the second ends of said links locate, there being a tight sliding fit between said apertures and said links which allows said links to move through said apertures so that said mirror support may be adjusted with respect to said base, but which act to prevent unwanted movement of said mirror support during normal use.

17. A mirror mounting assembly according to claim 16 wherein each said aperture comprises a pair of walls, one of said walls of each said aperture being movable and further comprising a force means applied to each said movable wall so that they are resiliently movable.

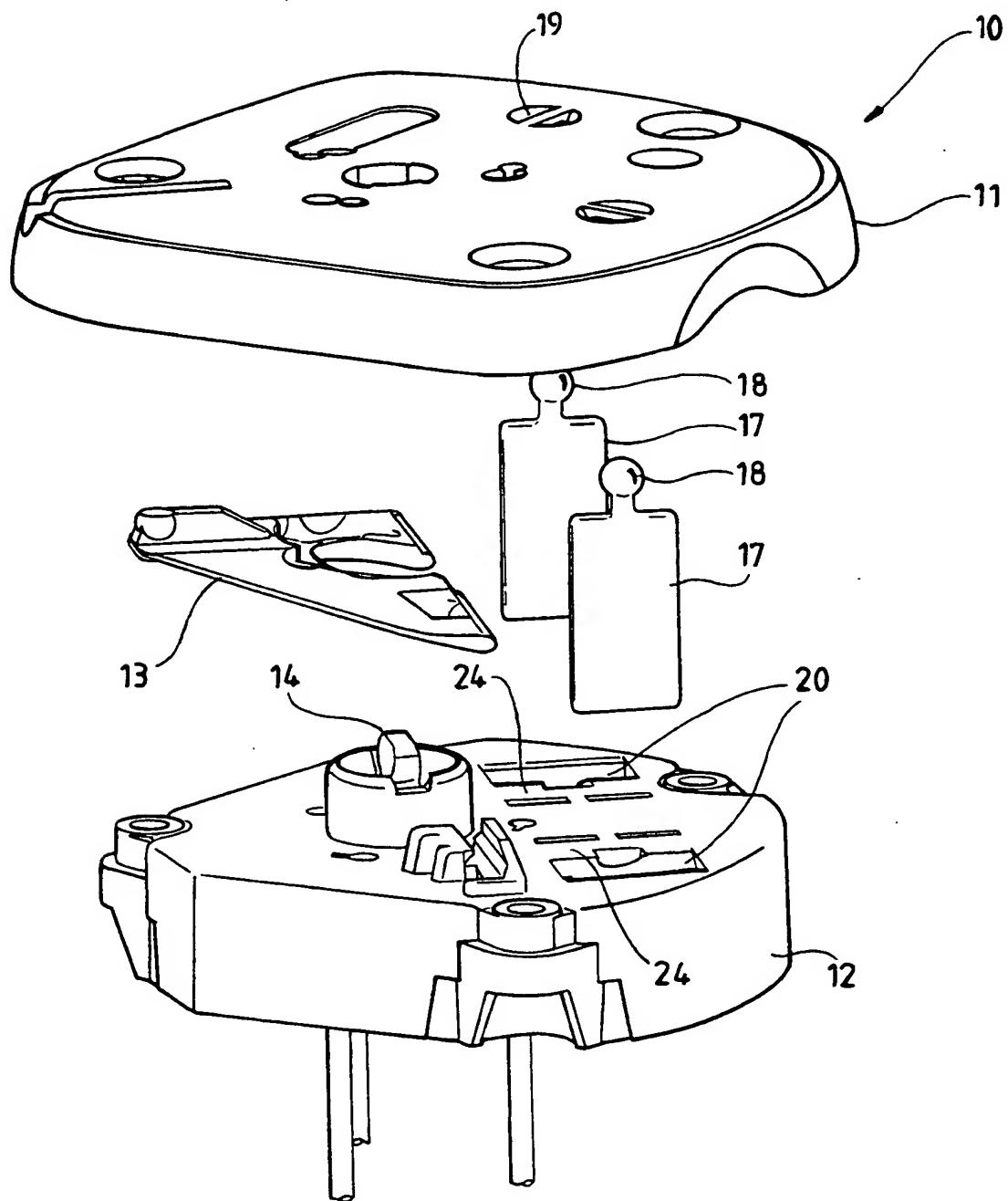
18. A mirror mounting means according to claim 17 wherein said force means comprises a spring placed between said movable walls.

19. A mirror mounting means according to claim 18 wherein said movable walls are hinged to said base portion.

20. A mirror mounting means according to claim 17 wherein said links comprise flat elongate members with a generally rectangular cross-section.

21. A mirror mounting means according to claim 17 wherein each said pair of walls is held together by a frame where said frame is attachable to said base portion.
22. A mirror mounting means as hereinbefore described with reference to and as illustrated in the accompanying drawings.

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**Fig 1**

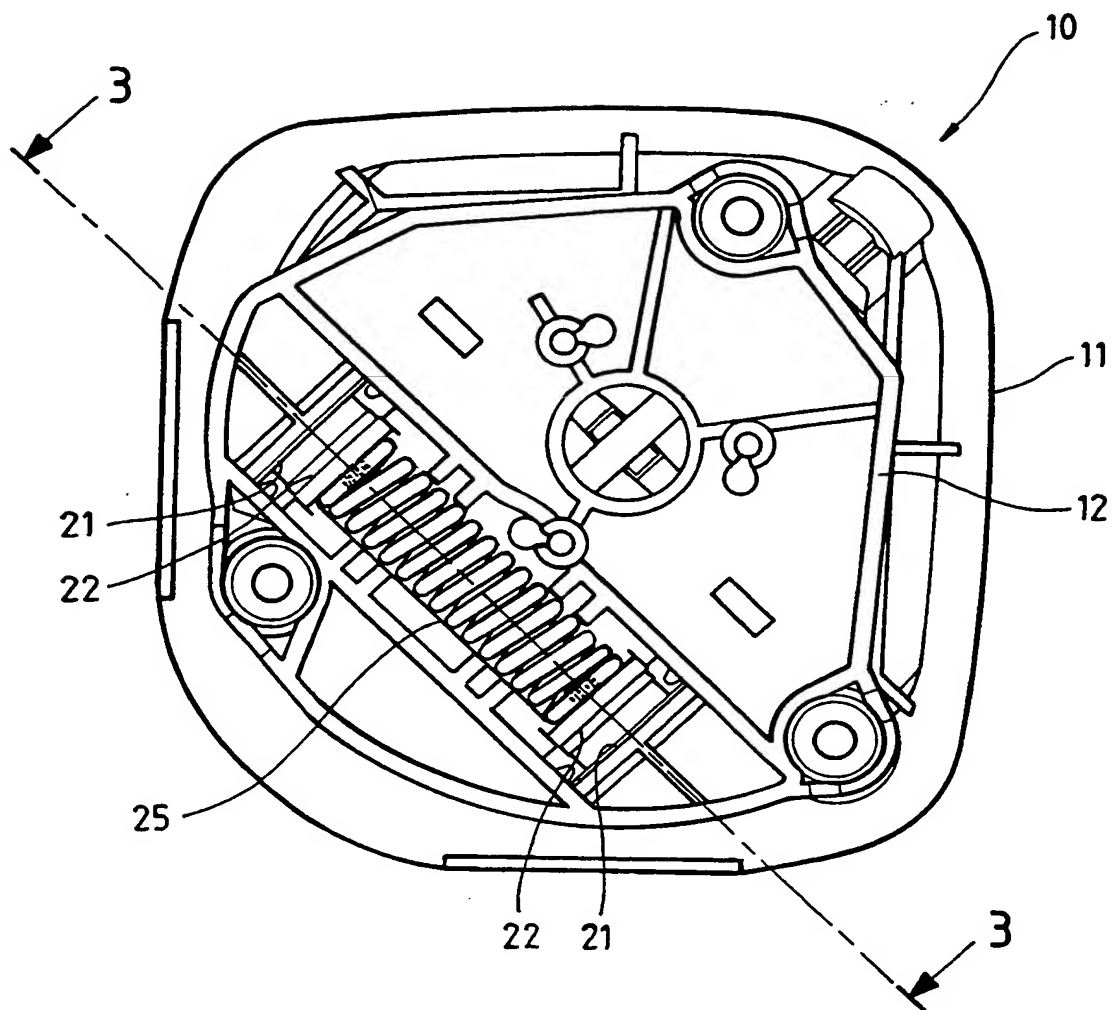
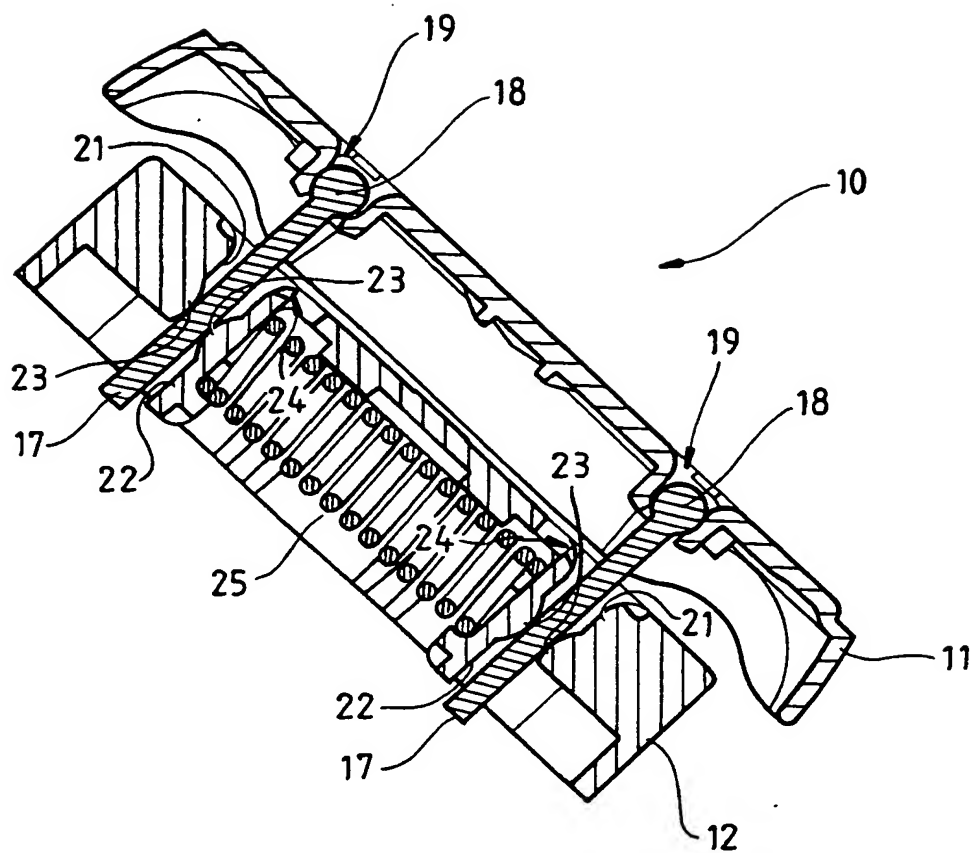
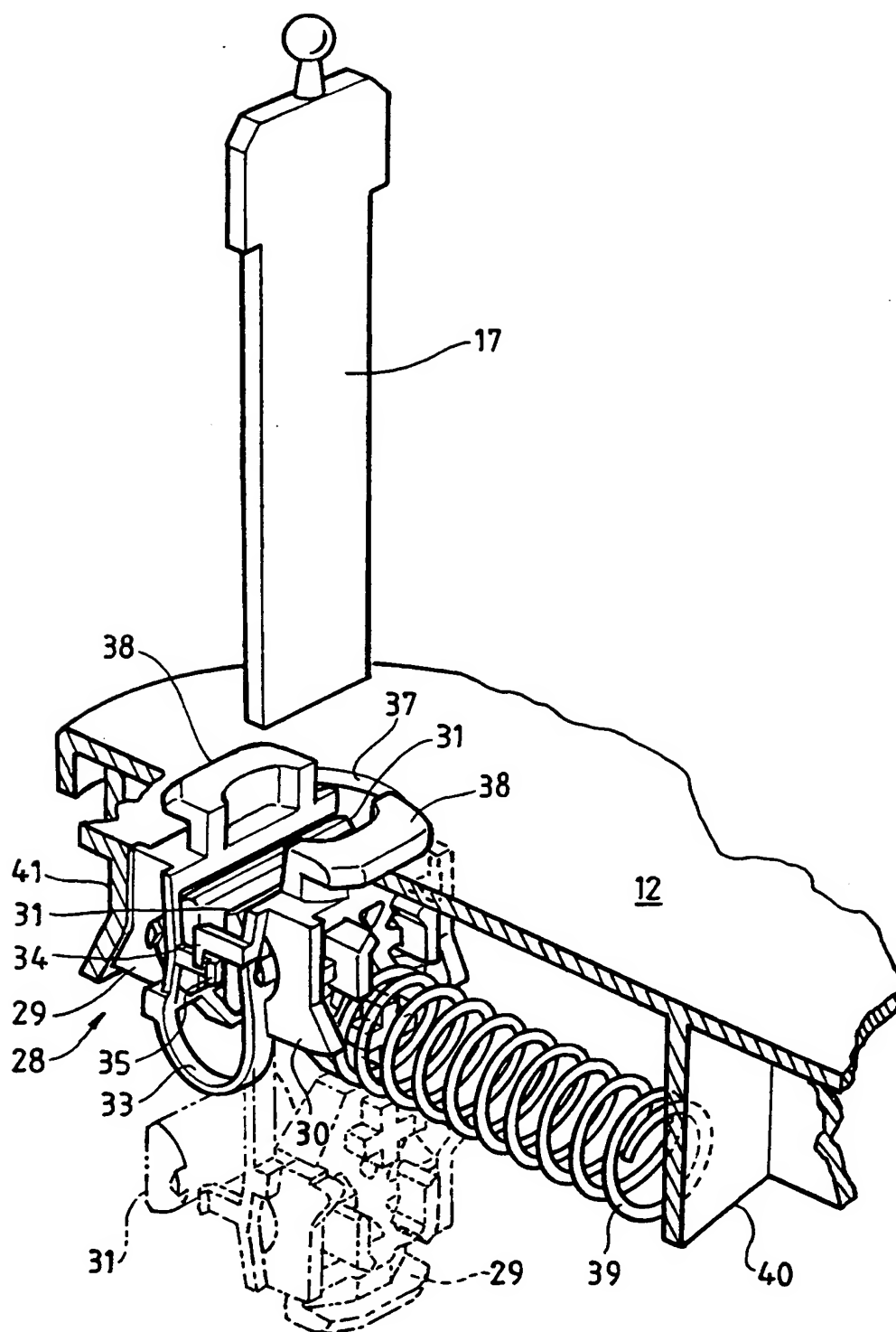


Fig 2

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**Fig 3**

**Fig 4**

INTERNATIONAL SEARCH REPORT

 International application No.
PCT/AU00/01100

| | | | | | |
|--|---|--|---|---|--|
| A. CLASSIFICATION OF SUBJECT MATTER | | | | | |
| Int. Cl. ⁷ : B60R 1/06, 1/02 | | | | | |
| According to International Patent Classification (IPC) or to both national classification and IPC | | | | | |
| B. FIELDS SEARCHED | | | | | |
| Minimum documentation searched (classification system followed by classification symbols) IPC: B60R 1/06, 1/02 | | | | | |
| Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched AU: IPC AS ABOVE | | | | | |
| Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) DWPI and key words | | | | | |
| C. DOCUMENTS CONSIDERED TO BE RELEVANT | | | | | |
| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. | | | |
| P, X | US 6024459 A (LEWIS) 15 February 2000 Whole document | 1-2, 16 | | | |
| X | DE 3524255 A (MESSERSCHMITT-BÖLKOW-BLOHM GmbH) 15 January 1987 Whole document | 1-18, 20-21 | | | |
| X | DE 3923706 A (SCHLACHTBERGER) 31 January 1991 Whole document | 1-3, 16 | | | |
| <input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex | | | | | |
| <table style="width: 100%; border: none;"> <tr> <td style="width: 33%; vertical-align: top;"> <p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </td> <td style="width: 33%; vertical-align: top;"> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p> </td> <td style="width: 33%;"></td> </tr> </table> | | | <p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> | <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p> | |
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| Date of the actual completion of the international search 13 October 2000 | | Date of mailing of the international search report 20 OCT 2000 | | | |
| Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. (02) 6285 3929 | | Authorized officer L. DESECAR Telephone No : (02) 6283 2381 | | | |

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU00/01100

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
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| X | US 5610772 A (IIZUKA) 11 March 1997 Whole document | 1-3, 16 |
| X | US 5949591 A (WHITEHEAD) 7 September 1999 Whole document | 1-2, 16 |

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/AU00/01100

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

| Patent Document Cited in Search Report | | | | Patent Family Member | |
|--|---------|----|---------|----------------------|---------|
| DE | 3524255 | FR | 2584502 | | |
| US | 5610772 | EP | 620138 | JP | 6127311 |
| US | 5949591 | BR | 9805270 | | |
| END OF ANNEX | | | | | |